BookletChart™

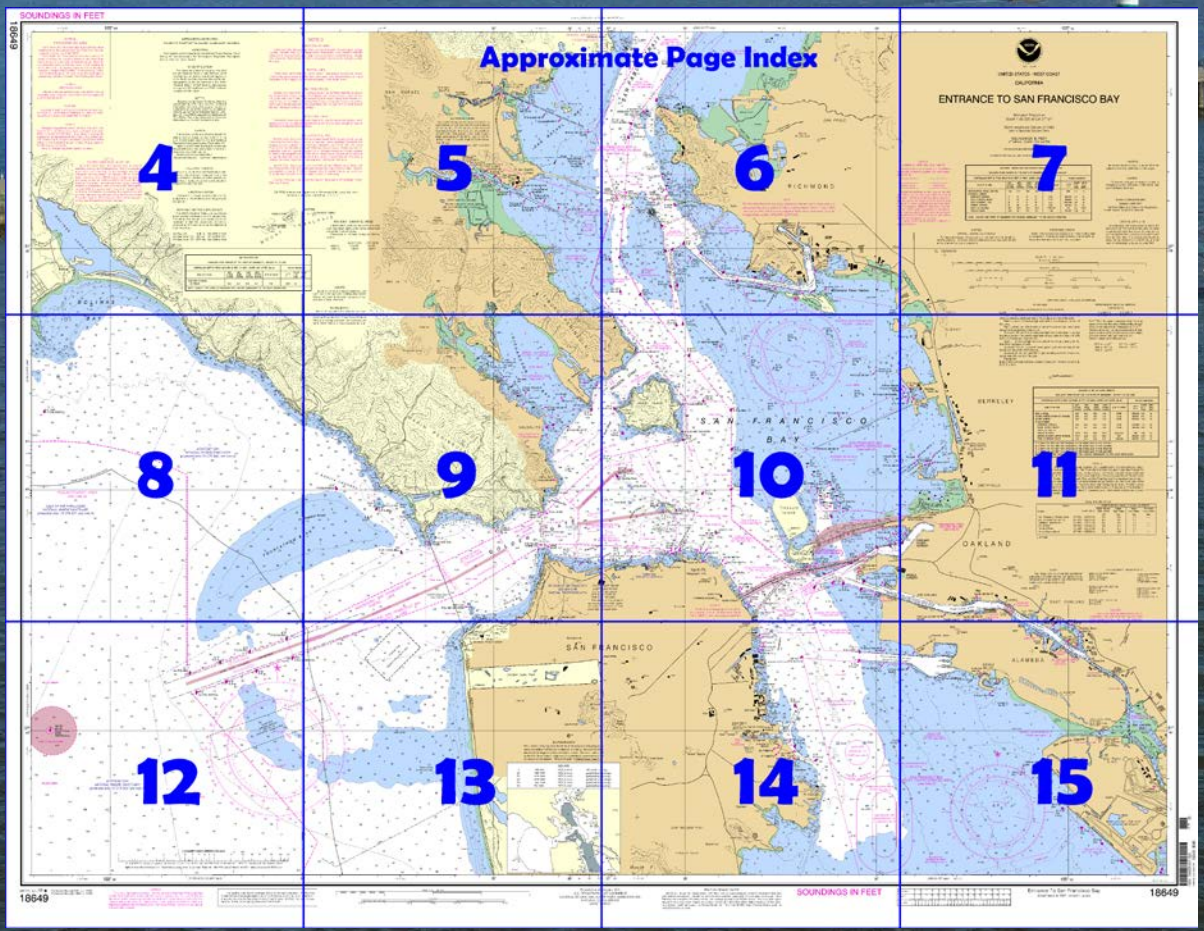
Entrance to San Francisco Bay

NOAA Chart 18649

A reduced-scale NOAA nautical chart for small boaters

When possible, use the full-size NOAA chart for navigation.

- *Complete, reduced-scale nautical chart*
- *Print at home for free*
- *Convenient size*
- *Up-to-date with Notices to Mariners*
- *Compiled by NOAA's Office of Coast Survey, the nation's chartmaker*



Published by the
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Coast Survey
www.NauticalCharts.NOAA.gov
888-990-NOAA

What are Nautical Charts?

Nautical charts are a fundamental tool of marine navigation. They show water depths, obstructions, buoys, other aids to navigation, and much more. The information is shown in a way that promotes safe and efficient navigation. Chart carriage is mandatory on the commercial ships that carry America's commerce. They are also used on every Navy and Coast Guard ship, fishing and passenger vessels, and are widely carried by recreational boaters.

What is a BookletChart™?

This BookletChart is made to help recreational boaters locate themselves on the water. It has been reduced in scale for convenience, but otherwise contains all the information of the full-scale nautical chart. The bar scales have also been reduced, and are accurate when used to measure distances in this BookletChart. See the Note at the bottom of page 5 for the reduction in scale applied to this chart.

Whenever possible, use the official, full scale NOAA nautical chart for navigation. Nautical chart sales agents are listed on the Internet at http://www.NauticalCharts.NOAA.gov.

This BookletChart does NOT fulfill chart carriage requirements for regulated commercial vessels under Titles 33 and 44 of the Code of Federal Regulations.

Notice to Mariners Correction Status

This BookletChart has been updated for chart corrections published in the U.S. Coast Guard Local Notice to Mariners, the National Geospatial Intelligence Agency Weekly Notice to Mariners, and, where applicable, the Canadian Coast Guard Notice to Mariners. Additional chart corrections have been made by NOAA in advance of their publication in a Notice to Mariners. The last Notices to Mariners applied to this chart are listed in the Note at the bottom of page 7. Coast Pilot excerpts are not being corrected.

For latest Coast Pilot excerpt visit the Office of Coast Survey website at http://www.nauticalcharts.noaa.gov/nsd/searchbychart.php?chart=18649.

(Selected Excerpts from Coast Pilot)
Bolinas Bay, E of Duxbury Point, is an open bight 3.5 miles wide between Duxbury Point and Rocky Point. The bay affords shelter in NW weather in 24 to 36 feet, sandy bottom. Care must be taken to avoid Duxbury Reef and the dangers extending up to 0.7 mile E of it. **Bolinas Lagoon** is separated from the bay by a narrow strip of sandy beach that is cut by a narrow shifting channel. The lagoon is shoal and entered only by small boats with local knowledge. The entrance has a depth of less than 3 feet.

Rocky Point is 100 feet high and shelving. Numerous detached rocks are within 200 yards of the cliffs on the S side of the point.
Point Bonita, on the N side of the entrance to Golden Gate, is a sharp black cliff 100 feet high, increasing to 300 feet on its seaward face, 0.3 mile N. From NW it shows as three heads. **Point Bonita Light** (37°48'56"N., 122°31'46"W.), 124 feet above the water, is shown from a 33-foot white tower on the S head. A sound signal is at the light.
Bonita Cove, E of Point Bonita, is occasionally used as an anchorage by small vessels. Anchorage is close under Point Bonita in about 36 feet.
San Francisco Approach Lighted Whistle Buoy SF (37°45'00"N., 122°41'34"W.) is 9 miles WSW of San Francisco Bay entrance. The buoy is red and white and is equipped with a racon.
San Francisco Bar, a semicircular shoal with depths less than 36 feet, is formed by silt deposits carried to the ocean by the Sacramento and San Joaquin River systems. The bar extends from 3 miles S of Point Lobos to within 0.5 mile of Point Bonita off the southern coast of Marin Peninsula; the extreme outer part is about 5 miles WSW of San Francisco Bay entrance. **Potatopatch Shoal**, the N part of the bar on **Fourfathom Bank**, has reported depths of less than 23 feet. The name is said to have originated from the fact that schooners from Bodega Bay frequently lost their deck load of potatoes while crossing the shoal. The S part of the bar has depths of 31 to 36 feet.
Golden Gate, the passage between the ocean and San Francisco Bay, is 2 miles wide at the W end between Point Bonita and Point Lobos, but the channel is reduced in width to 1.5 miles by Mile Rocks and to less than 0.7 mile by the Golden Gate Bridge pier. Depths in the passage vary from 108 feet to over 300 feet.
Warning.–Very dangerous conditions develop over San Francisco Bar whenever large swells, generated by storms far out at sea, reach the coast. A natural condition called shoaling causes the large swells to be amplified and increase in height when they move over the shallow water shoals. This piling up of the water over the shoals is worsened during times when the tidal current is flowing out (ebbing) through the Golden Gate. Outbound tidal current is strongest about 4 hours after high water at the Golden Gate Bridge and attains a velocity in excess of 6 knots at times. The incoming large swells are met by outbound tidal current causing very rough and dangerous conditions over the bar. Steep waves to 20 or 25 feet have been reported in the area. Mariners should exercise extreme caution as the bar conditions may change considerably in a relatively short period of time.
The most dangerous part of the San Francisco Bar is considered to be Fourfathom Bank. Bonita Channel, between the shoal and the Marin coast, can also become very dangerous during large swell conditions. The safest part of the bar is the Main Ship Channel through the center of the bar. But even that area can be extremely dangerous when the tidal current is ebbing.
Caution.–Vessels departing San Francisco Bay through Bonita Channel on the ebb current must use extreme caution when crossing the tide rip off Point Bonita. When the bow passes the rip the stern is thrown to port and, unless promptly met, the vessel will head straight for the rocks off the point. Vessels favoring Potatopatch Shoal too closely have reported a set toward it.
Bonita Channel should not be used by large vessels.

U.S. Coast Guard Rescue Coordination Center
24 hour Regional Contact for Emergencies

RCC Alameda	Commander 11th CG District Alameda, CA	(510) 437-3700

Table of Selected Chart Notes

GOLDEN GATE BRIDGE
SUSPENSION BRIDGE
VERT CL 225 FT CENTER
VERT CL 213 FT N PIER
VERT CL 211 FT S PIER
The center of the span is marked by three white lights vertically in line above a fixed green light on each side.

For Symbols and Abbreviations see Chart No. 1

NOTE G
Anchoring or dragging anchor within the charted limits of the Bay Area Rapid Transit (BART) tunnel crossing is prohibited.
(33 CFR 110.224, g, 2)

Mercator Projection
Scale 1:40,000 at Lat 37° 51'

North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

RICHMOND - SAN RAFAEL BRIDGE
3 fixed white lights are mounted vertically over fixed green lights at the center of the main navigation channel spans.
Clearances of the main navigation channel spans:

	WEST CHAN	EAST CHAN
HOR CL	1000 FT	970 FT
VERT CL	185 FT	135 FT

RACING BUOYS
Racing buoys within the limits of this chart are not shown hereon. Information may be obtained from the U.S. Coast Guard District Offices as racing and other private buoys are not all listed in the U.S. Coast Guard Light List.

SAN RAFAEL CREEK
The controlling depth was 4 feet for a mid-width of 50 feet from the channel entrance 37° 57' 30" N, 122° 27' 34" W, to the mouth of San Rafael Creek; thence 2 feet for a mid-width of 30 feet to the turning basin, 2 feet in the turning basin centered at 37°58'09.4"N, 122°31'04.9"W, thence 1 foot for a width of 60 feet to the Grand Ave. Bridge, except for shoal to bare for last 125 feet.
Feb 2011-Jan 2012

CAUTION
Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

NOTE H
High speed ferries operate in the San Francisco Bay. Mariners are cautioned that these craft move very rapidly and may transit waterways at angles to the normal direction of traffic. Ferries may deviate from these routes if necessary. Mariners should exercise caution when transiting between the origin or terminus of a charted ferry route and the actual ferry docking facility. Go to www.sfmx.org for additional information on the Ferry Traffic Routing Protocol.

POLLUTION REPORTS
Report all spills of oil and hazardous substances to the National Response Center via 1-800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).

CAUTION
Limitations on the use of radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and National Geospatial-Intelligence Agency Publication 117.
Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.
Station positions are shown thus:
⊙(Accurate location) o(Approximate location)

AIDS TO NAVIGATION
Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation.

NOTE F
Rear range light is a private aid operated for ships using the Ninth Avenue Turning Basin only. Range serves no purpose for any other transiting vessels and should not be used.

ARTICULATED AIDS
An articulated aid to navigation consists of a pipe structure that oscillates around a universal coupling connected to a sinker. The structure is kept upright by the buoyancy of a submerged flotation chamber. It is designed primarily to mark narrow channels in depths of up to 60 feet. All articulated aids are labelled ***Art***.

CAUTION
SUBMARINE PIPELINES AND CABLES
Charted submarine pipelines and submarine cables and submarine pipeline and cable areas are shown as:

Additional uncharted submarine pipelines and submarine cables may exist within the area of this chart. Not all submarine pipelines and submarine cables are required to be buried, and those that were originally buried may have become exposed. Mariners should use extreme caution when operating vessels in depths of water comparable to their draft in areas where pipelines and cables may exist, and when anchoring, dragging, or trawling.
Covered wells may be marked by lighted or unlighted buoys.

HEIGHTS
Elevations of rocks, bridges, landmarks, and lights are in feet and refer to Mean High Water. Contour and summit elevation values are in feet and refer to Mean Sea Level.

CAUTION
Temporary changes or defects in aids to navigation are not indicated on this chart. See Local Notice to Mariners.

NOAA WEATHER RADIO BROADCASTS
The NOAA Weather Radio stations listed below provide continuous weather broadcasts. The reception range is typically 20 to 40 nautical miles from the antenna site, but can be as much as 100 nautical miles for stations at high elevations.

Mt. Pise, CA	KHB-49	162.400 MHz WX2
Mt. Umunhum, CA	KEC-49	162.550 MHz WX1
Mt. Umunhum, CA	WWF-64	162.450 MHz WX5

CAUTION
Fixed and floating obstructions, some submerged, may exist within the magenta tinted bridge construction area. Mariners are advised to proceed with caution.

HORIZONTAL DATUM
The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83), which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 0.265" southward and 3.900" westward to agree with this chart.

NOTE S
Regulations for Ocean Dumping Sites are contained in 40 CFR, Parts 220-229. Additional information concerning the regulations and requirements for use of the sites may be obtained from the Environmental Protection Agency (EPA). See U.S. Coast Pilots appendix for addresses of EPA offices. Dumping subsequent to the survey dates may have reduced the depths shown.

NOTE Z
NO-DISCHARGE ZONE, 40 CFR 140
Under the Clean Water Act, Section 312, all vessels operating within a No-Discharge Zone (NDZ) are completely prohibited from discharging any sewage, treated or untreated, into the waters. All vessels with an installed marine sanitation device (MSD) that are navigating, moored, anchored, or docked within a NDZ must have the MSD disabled to prevent the overboard discharge of sewage (treated or untreated) or install a holding tank. Regulations for the NDZ are contained in the U.S. Coast Pilot. Additional information concerning the regulations and requirements may be obtained from the Environmental Protection Agency (EPA) web site: http://www.epa.gov/owow/oceans/regulatory/vessel_sewage/.

RADAR REFLECTORS
Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

OAKLAND INNER HARBOR BRIDGES

FRUITVALE AVE RR LIFT BRIDGE
HOR CL 200 FT
VERT CL 13 FT DOWN
VERT CL 135 FT UP

FRUITVALE AVE BASCULE BRIDGE
HOR CL 97 FT
HOR CL 72 FT (OPEN)
VERT CL 15 FT

BROOKLYN BASIN FIXED BRIDGE
HOR CL 89 FT
VERT CL 11 FT

HIGH ST BASCULE BRIDGE
HOR CL 244 FT
HOR CL 129 FT (OPEN)
VERT CL 16 FT
(100 FT CENTER WIDTH)

PARK ST BASCULE BRIDGE
HOR CL 241 FT
HOR CL 139 FT (OPEN)
VERT CL 15 FT
(100 FT CENTER WIDTH)

CAUTION
BASCULE BRIDGE CLEARANCES
For bascule bridges, whose spans do not open to a full upright or vertical position, unlimited vertical clearance is not available for the entire charted horizontal clearance.

AUTHORITIES
Hydrography and topography by the National Ocean Service, Coast Survey, with additional data from the Corps of Engineers, Geological Survey, and U.S. Coast Guard.

SOURCE DIAGRAM
The outlined areas represent the limits of the most recent hydrographic survey information that has been evaluated for charting. Surveys have been banded in this diagram by date and type of survey. Channels maintained by the U.S. Army Corps of Engineers are periodically resurveyed and are not shown on this diagram. Refer to Chapter 1, United States Coast Pilot.

COLREGS: International Regulations for Preventing Collisions at Sea, 1972.
Demarcation lines are shown thus: ————

NOTE E
The City of Richmond is requesting vessels use extreme caution when turning or anchoring in the vicinity of their 72" diameter sewer pipeline which is located 9300 feet offshore of Point Richmond at a depth of 26 feet below mean lower low water in approximate position 37°54'47"N, 122°25'06"W.

DEEP WATER ROUTE
Vessels with a draft of 45 feet or greater should use the "Deep Water Route" east of the Golden Gate Bridge. Vessels intending to use the Deep Water Route should notify San Francisco Traffic before passing Mile Rocks. Deep draft vessels will neither meet nor overtake in the Deep Water Route. Deep draft vessels bound for anchorage 9 should pass east of Blossom Rock then through the C-D or D-E span of the San Francisco-Oakland Bay Bridge.

RECREATION AREAS
Recreation areas are intended primarily for use by recreation vessels. Such areas should not be used by vessels 300 gross tons or more, except in case of emergency or special circumstances.

TRAFFIC LANES
Traffic lanes are intended for use by vessels 1600 gross tons and over; arrows indicate the approximate direction flow within each lane. The provisions of Inland Navigation Rule 9 apply to all vessels navigating in the traffic lanes.

VESSEL TRAFFIC SERVICE
The U.S. Coast Guard operates a mandatory Vessel Traffic Services (VTS) system in the San Francisco Bay and surrounding areas. Vessel operating procedures and designated radiotelephone frequencies are published in 33 CFR 161, the U.S. Coast Pilot, and/or the VTS User's Manual. Mariners should consult these sources for applicable rules and reporting requirements. Although mandatory VTS participation is limited to the navigable waters of the United States, certain vessels are encouraged or may be required, as a condition of port entry to report beyond this area to facilitate advance vessel traffic management within the VTS area.

The U.S. Coast Guard operates a Vessel Traffic Service Offshore Vessel Movement Reporting System covering the seaward approaches to San Francisco Bay. Vessels are requested to monitor VTSSF on Channel 12 at 15 and 45 minutes past each hour for broadcast reports of known shipping traffic in the area.

All of San Pablo Bay is within the VTS area with the exception of the Petaluma River Entrance Channel.

TIDAL INFORMATION

PLACE		Height referred to datum of soundings (MLLW)		
NAME	(LAT/LONG)	Mean Higher High Water	Mean High Water	Mean Low Water
		feet	feet	feet
Oakland Inner Harbor	(37°48'N/122°17'W)	6.5	5.8	1.1
Point Orient	(37°57'N/122°25'W)	6.0	5.4	1.1
San Francisco (Golden Gate)	(37°48'N/122°28'W)	5.8	5.2	1.1
Rincon Point, Pier 22 ½	(37°47'N/122°23'W)	6.3	5.7	1.1
Hunters Point , California	(37°44'N/122°21'W)	6.7	6.1	1.1
Yerba Buena Island	(37°49'N/122°22'W)	6.2	5.5	1.1

NOTE:
Dashes (- - -) located in datum columns indicate unavailable datum values for a tide station. Real-time water levels, tide predictions, and tidal current predictions are available on the Internet from http://tidesandcurrents.noaa.gov.

(Sep 2009)

SOUNDINGS IN FEET

18649

1 370 000 122° 40' 35'

550 000

NOTE B
PRECAUTIONARY AREA

Traffic lanes and the associated precautionary area established at the approachs to San Francisco Bay are completely shown on Chart 18645.

Traffic within the Precautionary Area may consist of vessels making the transition between the Main Ship Channel and one of the established traffic lanes. Mariners are advised to exercise extreme caution when navigating within this area. The normal cruising area of the pilot vessel is indicated "PILOT AREA." When passing Traffic Lane Lighted Buoys "S", "W", or "N", inbound vessels should contact the pilot boat on channel 13 for boarding instructions.

NOTE C
SEPARATION ZONE

Mariners are requested to stay outside the circular separation zone centered on the San Francisco Approach Lighted Horn Buoy SF.

WARNING

The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

NOTE A

Navigation regulations are published in Chapter 2, U.S. Coast Pilot 7. Additions or revisions to Chapter 2 are published in the Notice to Mariners. Information concerning the regulations may be obtained at the Office of the Commander, 11th Coast Guard District in Alameda, California or at the Office of the District Engineer, Corps of Engineers in San Francisco, California.

Refer to charted regulation section numbers.

NOTE Z
NO-DISCHARGE ZONE, 40 CFR 140

Under the Clean Water Act, Section 312, all vessels operating within a No-Discharge Zone (NDZ) are completely prohibited from discharging any sewage, treated or untreated, into the waters. All vessels with an installed marine sanitation device (MSD) that are navigating, moored, anchored, or docked within a NDZ must have the MSD disabled to prevent the overboard discharge of sewage (treated or untreated) or install a holding tank. Regulations for the NDZ are contained in the U.S. Coast Pilot. Additional information concerning the regulations and requirements may be obtained from the Environmental Protection Agency (EPA) web site: http://www.epa.gov/owow/oceans/regulatory/vessel_sewage/.

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 7 for important supplemental information.

AUTHORITIES

Hydrography and topography by the National Ocean Service, Coast Survey, with additional data from the Corps of Engineers, Geological Survey, and U.S. Coast Guard.

HORIZONTAL DATUM

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CAUTION

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Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.

Station positions are shown thus:
⊙(Accurate location) o(Approximate location)

POLLUTION REPORTS

Report all spills of oil and hazardous substances to the National Response Center via 1-800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).

AIDS TO NAVIGATION

Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation.

NOAA WEATHER RADIO BROADCASTS

The NOAA Weather Radio stations listed below provide continuous weather broadcasts. The reception range is typically 20 to 40 nautical miles from the antenna site, but can be as much as 100 nautical miles for stations at high elevations.

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Mt. Umunhum, CA	KEC-49	162.550 MHz WX1
Mt. Umunhum, CA	WWF-64	162.450 MHz WX5

PREC
Traffic within the Precautionary
courses. Vessels transiting the Pre
centerline of the area to port provid
within the area. Mariners are advise
this area.

TI
Traffic lanes are intended for u
indicate the approximate direction
Navigation Rule 9 apply to all vess

DEE
Vessels with a draft of 45 feet or
the Golden Gate Bridge. Vessels
notify San Francisco Traffic befor
neither meet nor overtake in the D
anchorage 9 should pass east of Bl
the San Francisco-Oakland Bay Br

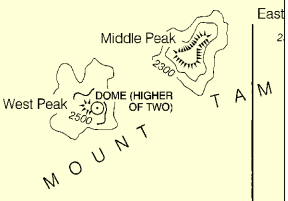
REC
Recreation areas are intended
areas should not be used by vess
emergency or special circumstanc

VESSE
The U.S. Coast Guard operates
in the San Francisco Bay and sur
designated radiotelephone frequenc
Pilot, and/or the VTS User's Manua
applicable rules and reporting req
is limited to the navigable waters of
or may be required, as a conditio
facilitate advance vessel traffic m

The U.S. Coast Guard operates
Reporting System covering the sea
are requested to monitor VTSSF on
for broadcast reports of known

All of San Pablo Bay is within the
Entrance Channel.

COLREGS: International Regul
Demarcation lines



SAN FRANCISCO BAY TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - SURVEYS TO AUG 2012								
CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW)						PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
MAIN SHIP CHANNEL: ENTRANCE	52.0	54.0	55.0	54.0	8-12	2000	4.3	55
NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION								

Joins page 8

18647

4

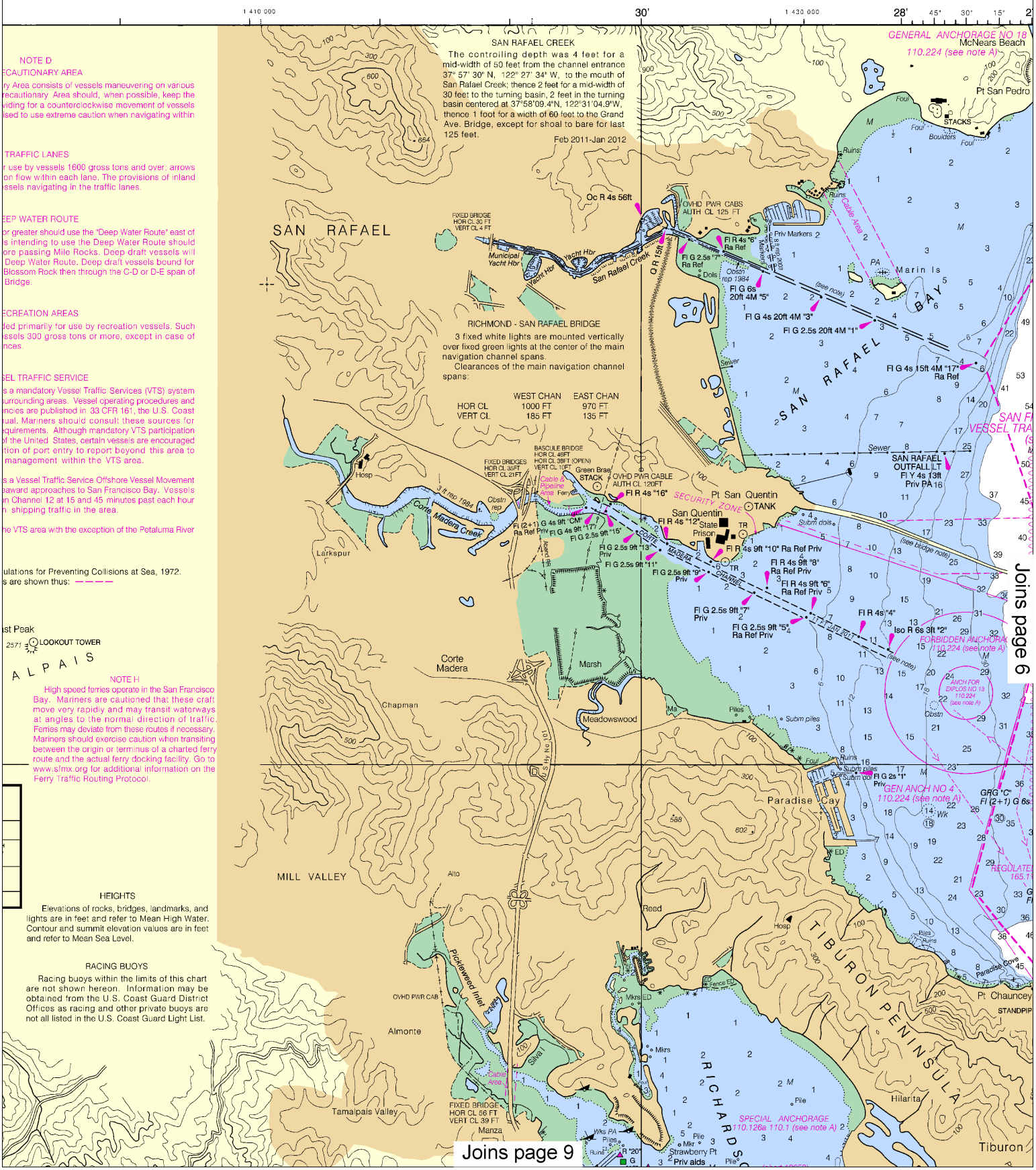
Note: Chart grid lines are aligned with true north.

Printed at reduced scale. ~~SCALE 1:40,000~~

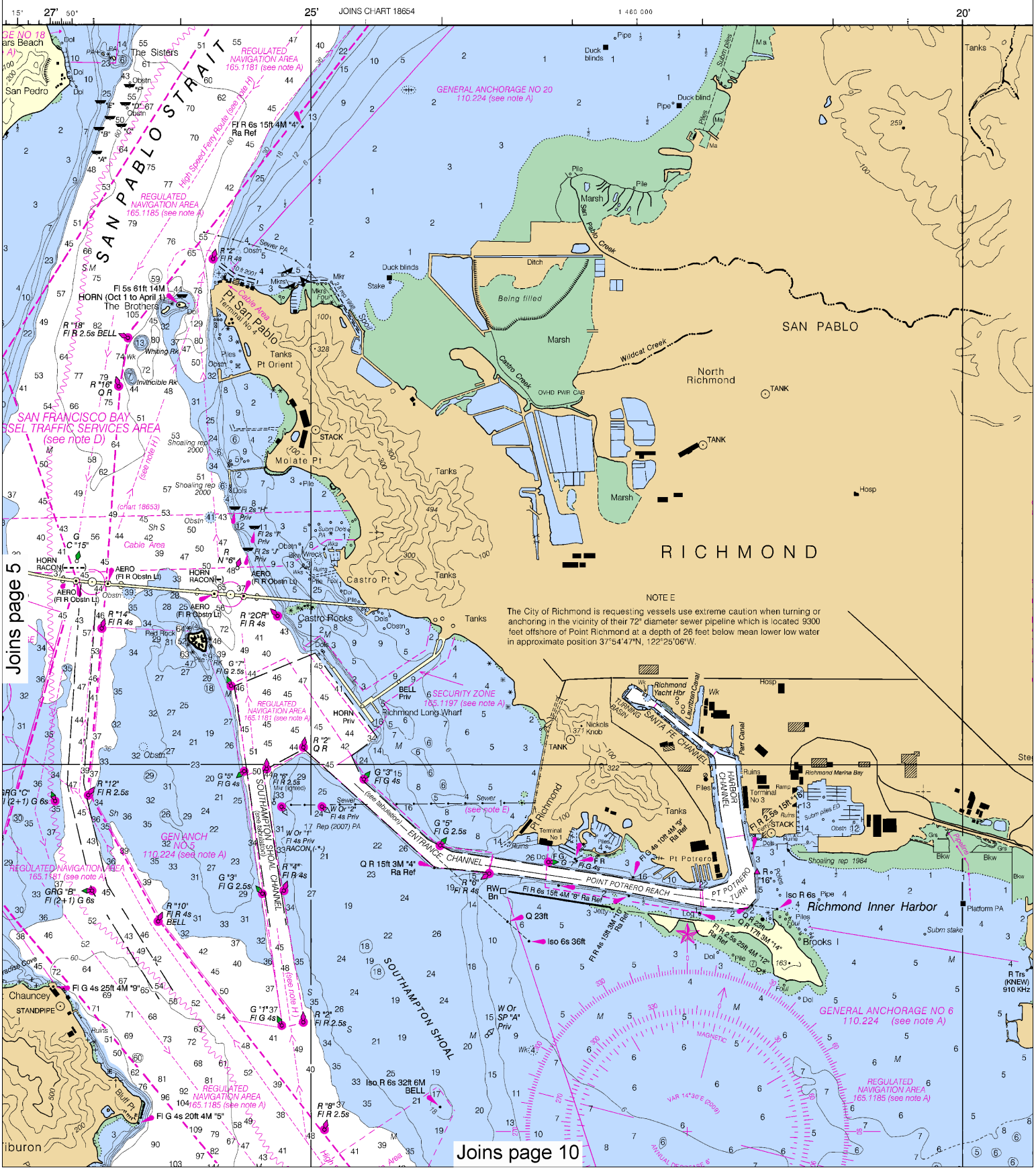
Nautical Miles: 1 ½ 0 1 2 3

Yards: 1000 0 1000 2000 3000 4000 5000

See Note on page 5.



This BookletChart was reduced to 70% of the original chart scale. The new scale is 1:57143. Barscales have also been reduced and are accurate when used to measure distances in this BookletChart.



6

Note: Chart grid lines are aligned with true north.

Printed at reduced scale. ~~SCALE 1:40,000~~

Nautical Miles: 1 ½ 0 1 2 3

Yards: 1000 0 1000 2000 3000 4000 5000

See Note on page 5.

1 490 000 122° 15'

THE NATION'S CHARTMAKER SINCE 1807

UNITED STATES - WEST COAST

CALIFORNIA

ENTRANCE TO SAN FRANCISCO BAY

Mercator Projection
Scale 1:40,000 at Lat 37° 51'

North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

For Symbols and Abbreviations see Chart No. 1

Additional information can be obtained at nauticalcharts.noaa.gov.

540 000

CAUTION
SUBMARINE PIPELINES AND CABLES

Charted submarine pipelines and submarine cables and submarine pipeline and cable areas are shown as:

Pipeline Area *Cable Area*

Additional uncharted submarine pipelines and submarine cables may exist within the area of this chart. Not all submarine pipelines and submarine cables are required to be buried, and those that were originally buried may have become exposed. Mariners should use extreme caution when operating vessels in depths of water comparable to their draft in areas where pipelines and cables may exist, and when anchoring, dragging, or trawling.

Covered wells may be marked by lighted or unlighted buoys.

RICHMOND HARBOR AND SOUTHAMPTON SHOAL CHANNEL DEPTHS

TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - SURVEYS TO MAR 2012

CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW)						PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
SOUTHAMPTON SHOAL CHANNEL	42	45	45	44	3-12	600	1.1	45
RICHMOND HARBOR								
ENTRANCE CHANNEL	36	36	36	36	3-12	600-550	1.0	38
POINT POTRERO REACH	35	35	36	34	3-12	500-600	1.4	38
POINT POTRERO TURN	36	38	37	37	3-12	600-1250	0.6	38
HARBOR CHANNEL	37	37	37	37	3-12	850-200	0.5	38
SANTA FE CHANNEL	27	29	29	26	9-09; 3-12	200	0.5	38-30
TURNING BASIN	27	28	27	21	9-09	200-500	0.16	30

NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

CAUTION

Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

CAUTION

Temporary changes or defects in aids to navigation are not indicated on this chart. See Local Notice to Mariners.

PLANE COORDINATE GRID
(based on NAD 1927)

California State Grid, Zone 3, is indicated by dotted ticks at 10,000 foot intervals.

ARTICULATED AIDS

An articulated aid to navigation consists of a pipe structure that oscillates around a universal coupling connected to a sinker. The structure is kept upright by the buoyancy of a submerged flotation chamber. It is designed primarily to mark narrow channels in depths of up to 60 feet. All articulated aids are labelled *"Art"*.

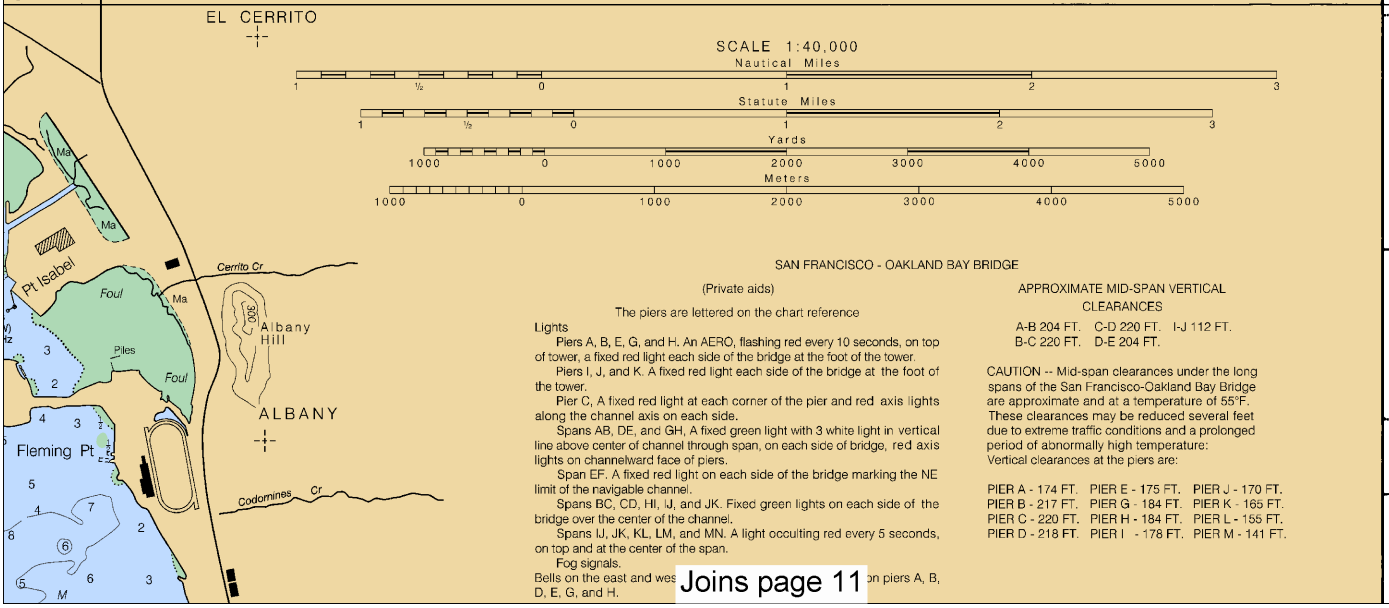
CAUTION
BASCULE BRIDGE CLEARANCES

For bascule bridges, whose spans do not open to a full upright or vertical position, unlimited vertical clearance is not available for the entire charted horizontal clearance.

RADAR REFLECTORS

Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

37° 55'



SAN FRANCISCO - OAKLAND BAY BRIDGE

(Private aids)

The piers are lettered on the chart reference

Lights

Piers A, B, E, G, and H. An AERO, flashing red every 10 seconds, on top of tower, a fixed red light each side of the bridge at the foot of the tower.

Piers I, J, and K. A fixed red light each side of the bridge at the foot of the tower.

Pier C, A fixed red light at each corner of the pier and red axis lights along the channel axis on each side.

Spans AB, DE, and GH, A fixed green light with 3 white light in vertical line above center of channel through span, on each side of bridge, red axis lights on channelward face of piers.

Span EF. A fixed red light on each side of the bridge marking the NE limit of the navigable channel.

Spans BC, CD, HI, IJ, and JK. Fixed green lights on each side of the bridge over the center of the channel.

Spans IJ, JK, KL, LM, and MN. A light occulting red every 5 seconds, on top and at the center of the span.

Fog signals.

Bells on the east and wes[illegible] on piers A, B, D, E, G, and H.

Joins page 11

APPROXIMATE MID-SPAN VERTICAL CLEARANCES

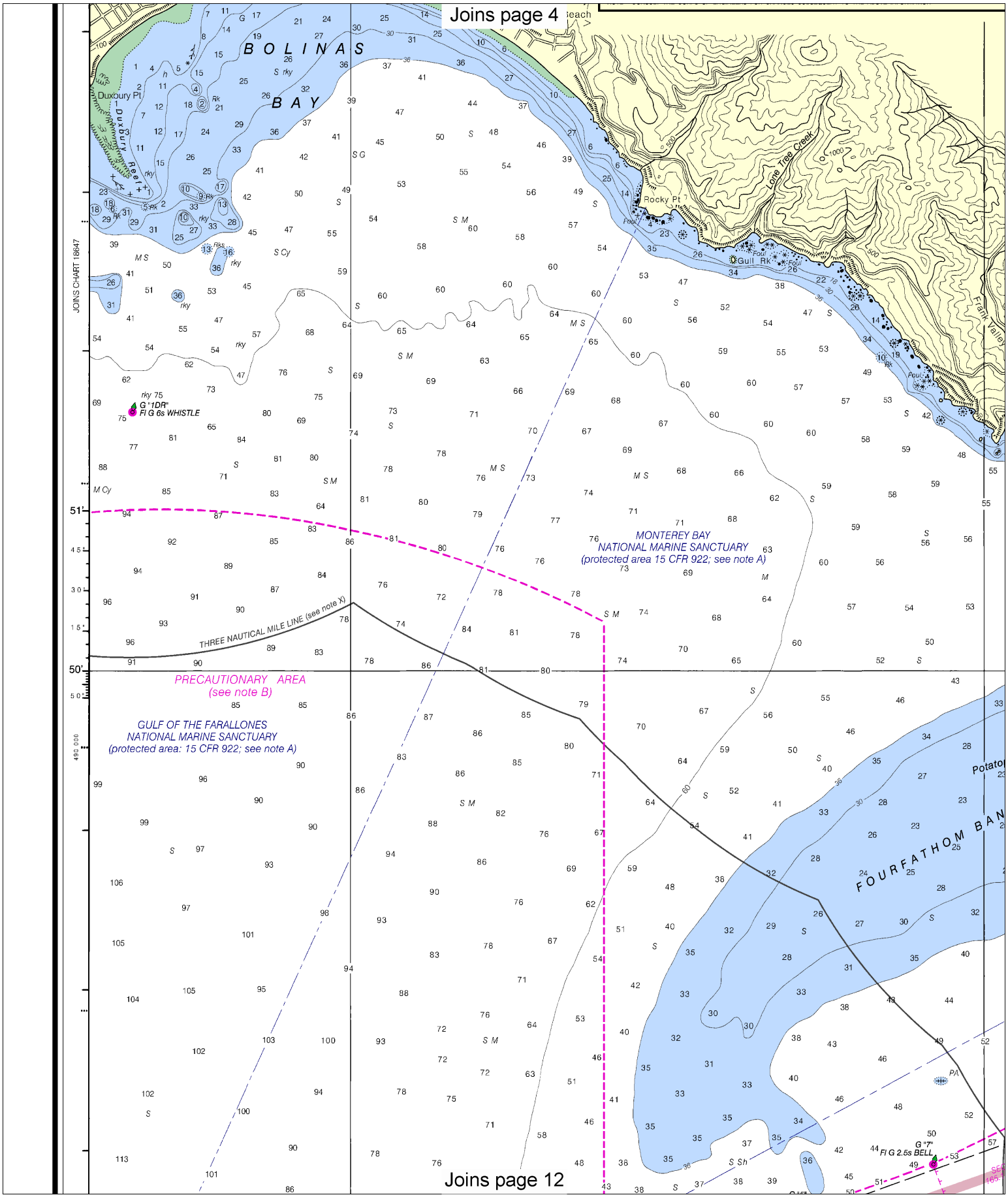
A-B 204 FT. C-D 220 FT. I-J 112 FT.
B-C 220 FT. D-E 204 FT.

CAUTION -- Mid-span clearances under the long spans of the San Francisco-Oakland Bay Bridge are approximate and at a temperature of 55°F. These clearances may be reduced several feet due to extreme traffic conditions and a prolonged period of abnormally high temperature:
Vertical clearances at the piers are:

PIER A - 174 FT. PIER E - 175 FT. PIER J - 170 FT.
PIER B - 217 FT. PIER G - 184 FT. PIER K - 165 FT.
PIER C - 220 FT. PIER H - 184 FT. PIER L - 155 FT.
PIER D - 218 FT. PIER I - 178 FT. PIER M - 141 FT.

510 000

This BookletChart has been updated through: Coast Guard Local Notice To Mariners: 0313 1/15/2013,
NGA Weekly Notice to Mariners: 0413 1/26/2013,
Canadian Coast Guard Notice to Mariners: n/a.



8

Note: Chart grid lines are aligned with true north.

Printed at reduced scale. ~~SCALE 1:40,000~~

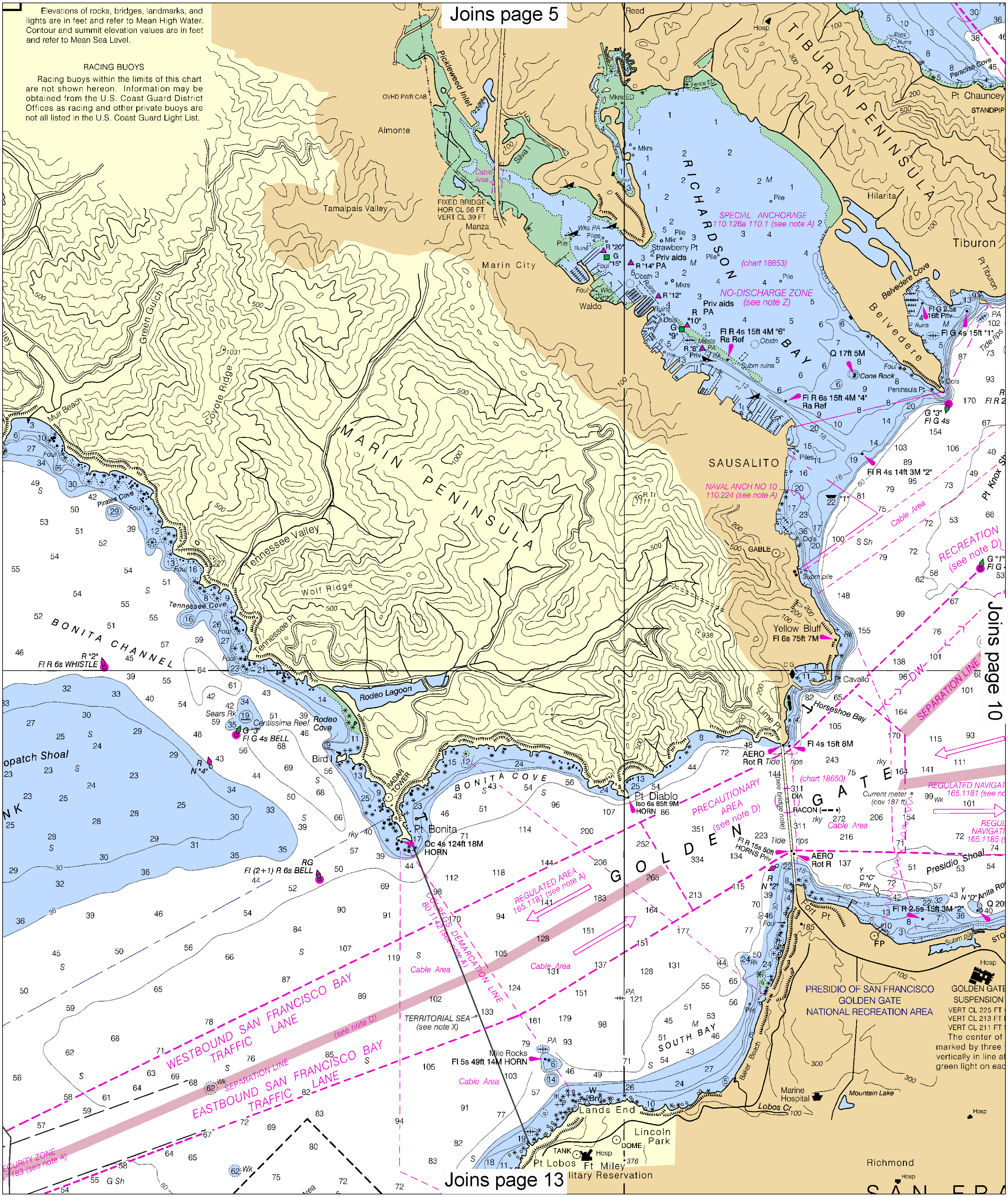
Nautical Miles

1 ½ 0 1 2 3

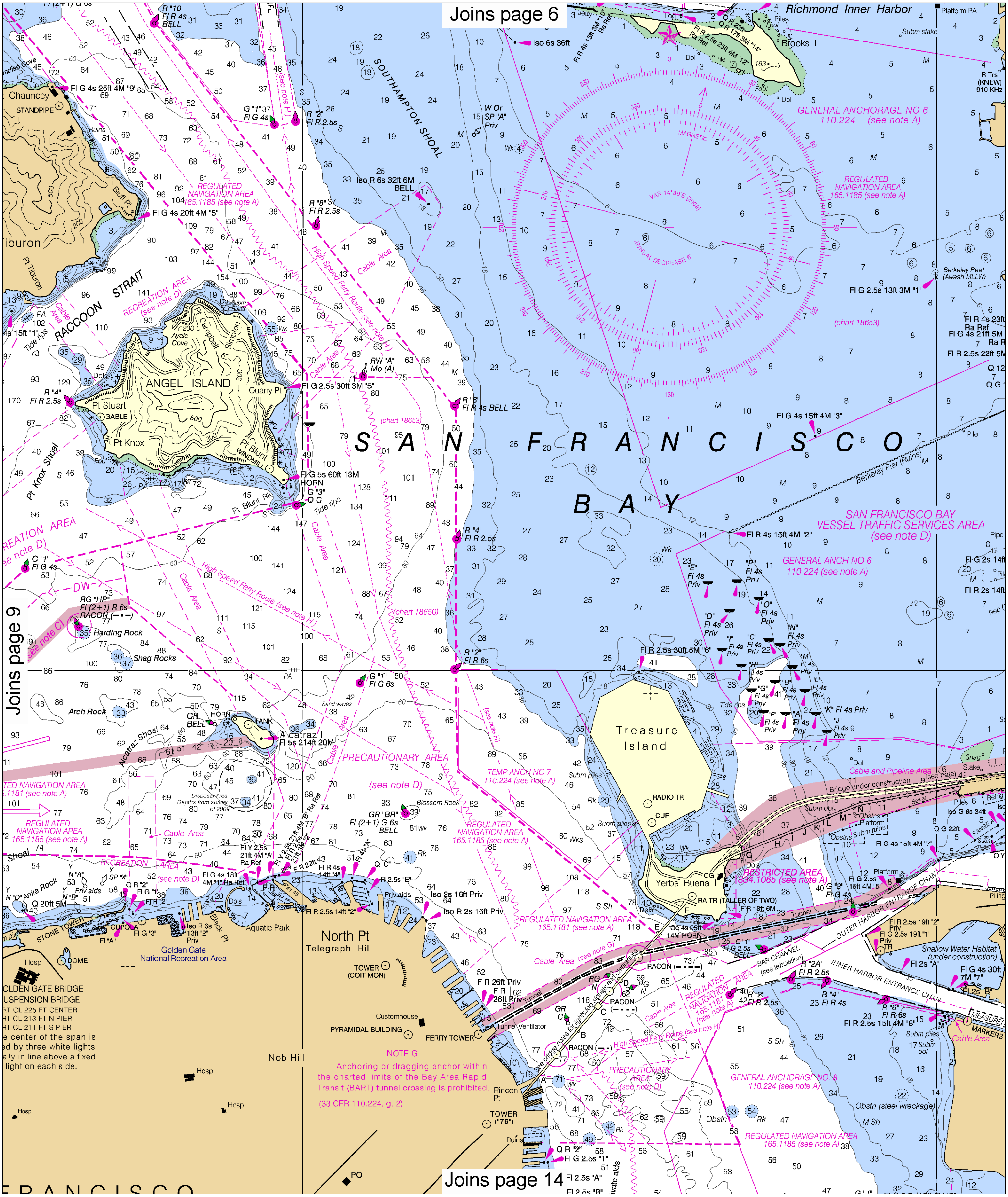
Yards

1000 0 1000 2000 3000 4000 5000

See Note on page 5.



Elevations of rocks, bridges, landmarks, and lights are in feet and refer to Mean High Water. Contour and summit elevation values are in feet and refer to Mean Sea Level.
RACING BUOYS
Racing buoys within the limits of this chart are not shown hereon. Information may be obtained from the U.S. Coast Guard District Offices as racing and other private buoys are not all listed in the U.S. Coast Guard Light List.
Joins page 5
Joins page 10
Joins page 13
TIBURON PENINSULA
RICHARDSON BAY
MARIN PENINSULA
SAUSALITO
GOLDEN GATE
BONITA CHANNEL
BONITA COVE
SOUTH BAY
Almonte
Tamalpais Valley
Manza
Marin City
Waldo
Hilarita
Tiburon
Belvedere
Belvedere Cove
Pt Chauncey
Paradise Cove
Strawberry Pt
Peninsula Pt
Cone Rock
Pt Tiburon
Pt Knox
Muir Beach
Green Gulch
Coyote Ridge
Tennessee Valley
Wolf Ridge
Tennessee Cove
Tennessee Pt
Pirates Cove
Rodeo Lagoon
Rodeo Cove
Bird I
Centissima Reef
Sears Rk
Potatopatch Shoal
Pt Bonita
RADAR TOWER
Pt Diablo
Yellow Bluff
Pt Cavallo
Horseshoe Bay
Lime Pt
Fort Pt
Presidio Shoal
Anita Rock
Mile Rocks
Lands End
Lincoln Park
Pt Lobos
Ft Miley
Military Reservation
Baker Beach
Marine Hospital
Mountain Lake
Lobos Cr
Richmond
Pickleweed Inlet
FIXED BRIDGE HOR CL 56 FT VERT CL 39 FT
OVHD PWR CAB
SPECIAL ANCHORAGE 110.126a 110.1 (see note A)
(chart 18653)
NO-DISCHARGE ZONE (see note Z)
NAVAL ANCH NO 10 110.224 (see note A)
RECREATION (see note D)
SEPARATION LINE
PRECAUTIONARY AREA (see note D)
REGULATED AREA 165.1181 (see note A)
REGULATED NAVIGATION 165.1181 (see note A)
COLREGS DEMARCATION LINE 80.1142 (see note A)
TERRITORIAL SEA (see note X)
WESTBOUND SAN FRANCISCO BAY TRAFFIC LANE
EASTBOUND SAN FRANCISCO BAY TRAFFIC LANE
SECURITY ZONE 165.1183 (see note A)
Cable Area
(chart 18650)
(see bridge note)
Current meter (cov 187 ft)
RACON
AERO Rot R
Oc 4s 124ft 18M HORN
Iso 6s 85ft 9M HORN
Fl 4s 15ft 8M
Fl 6s 75ft 7M
Fl R 15s 50ft HORNS Priv
Fl 5s 49ft 14M HORN
Fl R 6s WHISTLE
Fl G 4s BELL
Fl (2+1) R 6s BELL
Fl R 4s 14ft 3M "2"
Fl R 6s 15ft 4M "4" Ra Ref
Fl R 4s 15ft 4M "6" Ra Ref
Q 17ft 5M
Fl G 4s 15ft "1"
Fl G 2.5s 16ft Priv
Fl R 2.5s 15ft 3M "2"
PRESIDIO OF SAN FRANCISCO
GOLDEN GATE NATIONAL RECREATION AREA
GOLDEN GATE SUSPENSION
VERT CL 225 FT
VERT CL 213 FT
VERT CL 211 FT
The center of marked by three vertically in line at green light on each



Note: Chart grid lines are aligned with true north.

Printed at reduced scale.

SCALE 1:40,000

Nautical Miles

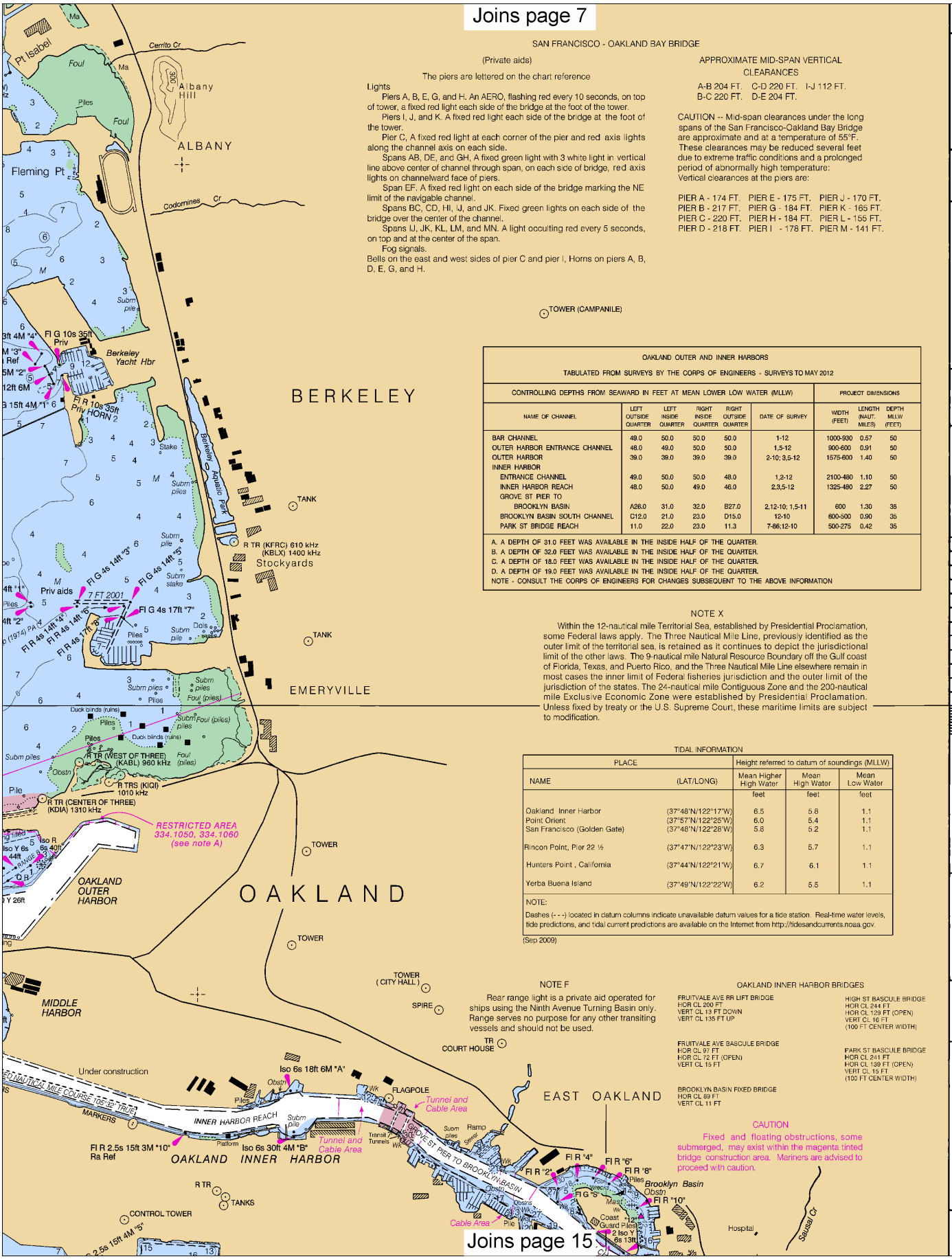
1 ½ 0 1 2 3

Yards

1000 0 1000 2000 3000 4000 5000

See Note on page 5.

Joins page 7



SAN FRANCISCO - OAKLAND BAY BRIDGE

(Private aids)

The piers are lettered on the chart reference

Lights

Piers A, B, E, G, and H. An AERO, flashing red every 10 seconds, on top of tower, a fixed red light each side of the bridge at the foot of the tower.

Piers I, J, and K. A fixed red light each side of the bridge at the foot of the tower.

Pier C, A fixed red light at each corner of the pier and red axis lights along the channel axis on each side.

Spans AB, DE, and GH, A fixed green light with 3 white light in vertical line above center of channel through span, on each side of bridge, red axis lights on channelward face of piers.

Span EF. A fixed red light on each side of the bridge marking the NE limit of the navigable channel.

Spans BC, CD, HI, IJ, and JK. Fixed green lights on each side of the bridge over the center of the channel.

Spans IJ, JK, KL, LM, and MN. A light occulting red every 5 seconds, on top and at the center of the span.

Fog signals.

Bells on the east and west sides of pier C and pier I, Horns on piers A, B, D, E, G, and H.

APPROXIMATE MID-SPAN VERTICAL CLEARANCES

A-B 204 FT. C-D 220 FT. I-J 112 FT.
B-C 220 FT. D-E 204 FT.

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PIER D - 218 FT. PIER I - 178 FT. PIER M - 141 FT.

OAKLAND OUTER AND INNER HARBORS

TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - SURVEYS TO MAY 2012

CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW)						PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
BAR CHANNEL	49.0	50.0	50.0	50.0	1-12	1000-930	0.57	50
OUTER HARBOR ENTRANCE CHANNEL	48.0	49.0	50.0	50.0	1,5-12	900-600	0.91	50
OUTER HARBOR	39.0	39.0	39.0	39.0	2-10; 3,5-12	1575-600	1.40	50
INNER HARBOR								
ENTRANCE CHANNEL	49.0	50.0	50.0	48.0	1,2-12	2100-480	1.10	50
INNER HARBOR REACH	48.0	50.0	49.0	46.0	2,3,5-12	1325-480	2.27	50
GROVE ST PIER TO								
BROOKLYN BASIN	A26.0	31.0	32.0	B27.0	2,12-10; 1,5-11	600	1.30	35
BROOKLYN BASIN SOUTH CHANNEL	C12.0	21.0	23.0	D15.0	12-10	600-500	0.90	35
PARK ST BRIDGE REACH	11.0	22.0	23.0	11.3	7-86;12-10	500-275	0.42	35

A. A DEPTH OF 31.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
B. A DEPTH OF 32.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
C. A DEPTH OF 18.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
D. A DEPTH OF 19.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

NOTE X

Within the 12-nautical mile Territorial Sea, established by Presidential Proclamation, some Federal laws apply. The Three Nautical Mile Line, previously identified as the outer limit of the territorial sea, is retained as it continues to depict the jurisdictional limit of the other laws. The 9-nautical mile Natural Resource Boundary off the Gulf coast of Florida, Texas, and Puerto Rico, and the Three Nautical Mile Line elsewhere remain in most cases the inner limit of Federal fisheries jurisdiction and the outer limit of the jurisdiction of the states. The 24-nautical mile Contiguous Zone and the 200-nautical mile Exclusive Economic Zone were established by Presidential Proclamation. Unless fixed by treaty or the U.S. Supreme Court, these maritime limits are subject to modification.

TIDAL INFORMATION

PLACE		Height referred to datum of soundings (MLLW)		
NAME	(LAT/LONG)	Mean Higher High Water	Mean High Water	Mean Low Water
		feet	feet	feet
Oakland Inner Harbor	(37°48'N/122°17'W)	6.5	5.8	1.1
Point Orient	(37°57'N/122°25'W)	6.0	5.4	1.1
San Francisco (Golden Gate)	(37°48'N/122°28'W)	5.8	5.2	1.1
Rincon Point, Pier 22 ½	(37°47'N/122°23'W)	6.3	5.7	1.1
Hunters Point , California	(37°44'N/122°21'W)	6.7	6.1	1.1
Yerba Buena Island	(37°49'N/122°22'W)	6.2	5.5	1.1

NOTE:
Dashes (- - -) located in datum columns indicate unavailable datum values for a tide station. Real-time water levels, tide predictions, and tidal current predictions are available on the Internet from http://tidesandcurrents.noaa.gov.

(Sep 2009)

NOTE F

Rear range light is a private aid operated for ships using the Ninth Avenue Turning Basin only. Range serves no purpose for any other transiting vessels and should not be used.

OAKLAND INNER HARBOR BRIDGES

FRUITVALE AVE RR LIFT BRIDGE
HOR CL 200 FT
VERT CL 13 FT DOWN
VERT CL 135 FT UP

FRUITVALE AVE BASCULE BRIDGE
HOR CL 97 FT
HOR CL 72 FT (OPEN)
VERT CL 15 FT

BROOKLYN BASIN FIXED BRIDGE
HOR CL 89 FT
VERT CL 11 FT

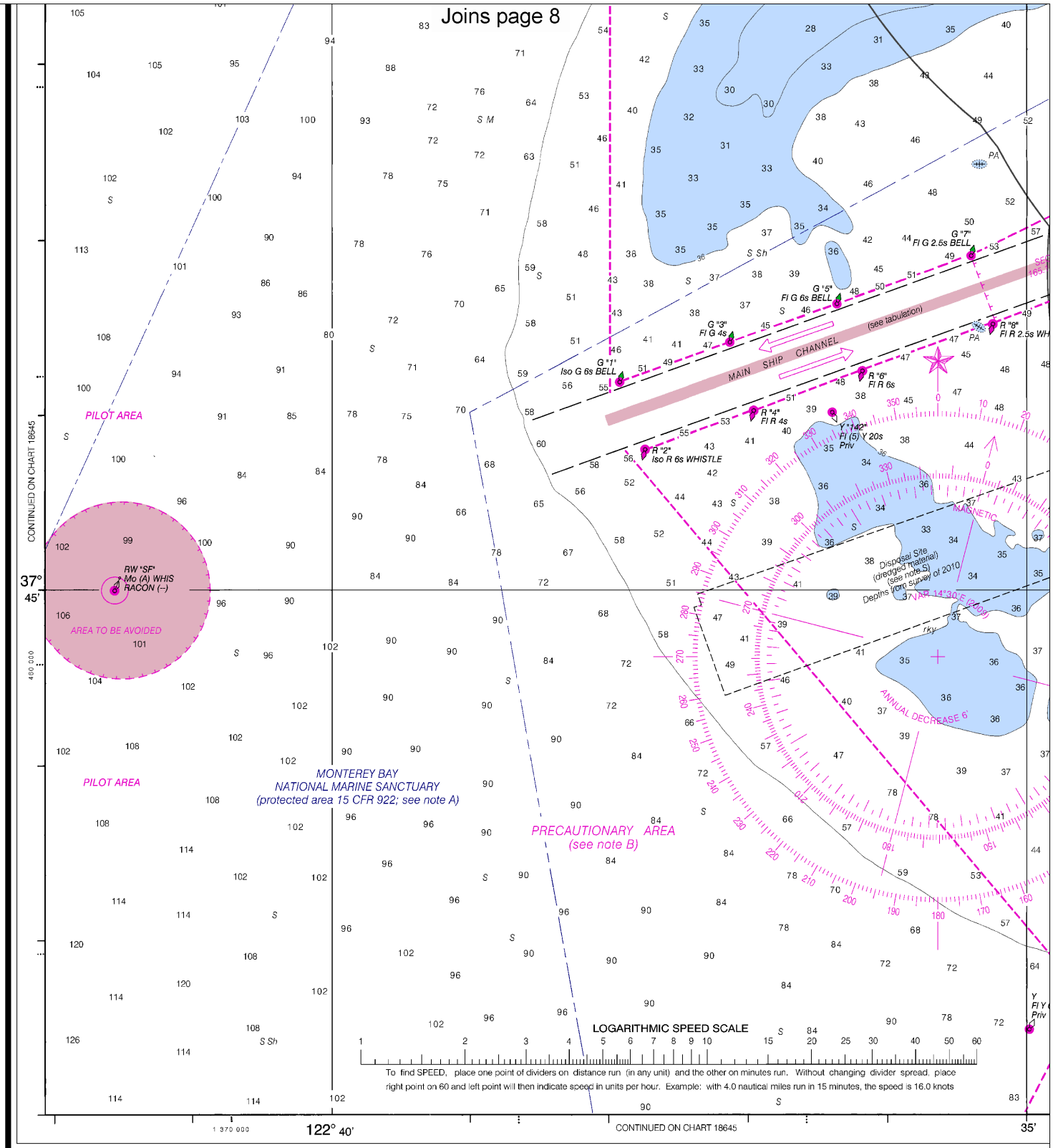
HIGH ST BASCULE BRIDGE
HOR CL 244 FT
HOR CL 129 FT (OPEN)
VERT CL 16 FT
(100 FT CENTER WIDTH)

PARK ST BASCULE BRIDGE
HOR CL 241 FT
HOR CL 139 FT (OPEN)
VERT CL 15 FT
(100 FT CENTER WIDTH)

CAUTION

Fixed and floating obstructions, some submerged, may exist within the magenta tinted bridge construction area. Mariners are advised to proceed with caution.

Joins page 15



67th Ed., Dec./09 ■ Corrected through NM Dec. 05/09
Corrected through LNM Nov. 24/09

18649

CAUTION

This chart has been corrected from the Notice to Mariners (NM) published weekly by the National Geospatial-Intelligence Agency and the Local Notice to Mariners (LNM) issued periodically by each U.S. Coast Guard district to the dates shown in the lower left hand corner. Chart updates corrected from Notice to Mariners published after the dates shown in the lower left hand corner are available at nauticalcharts.noaa.gov.

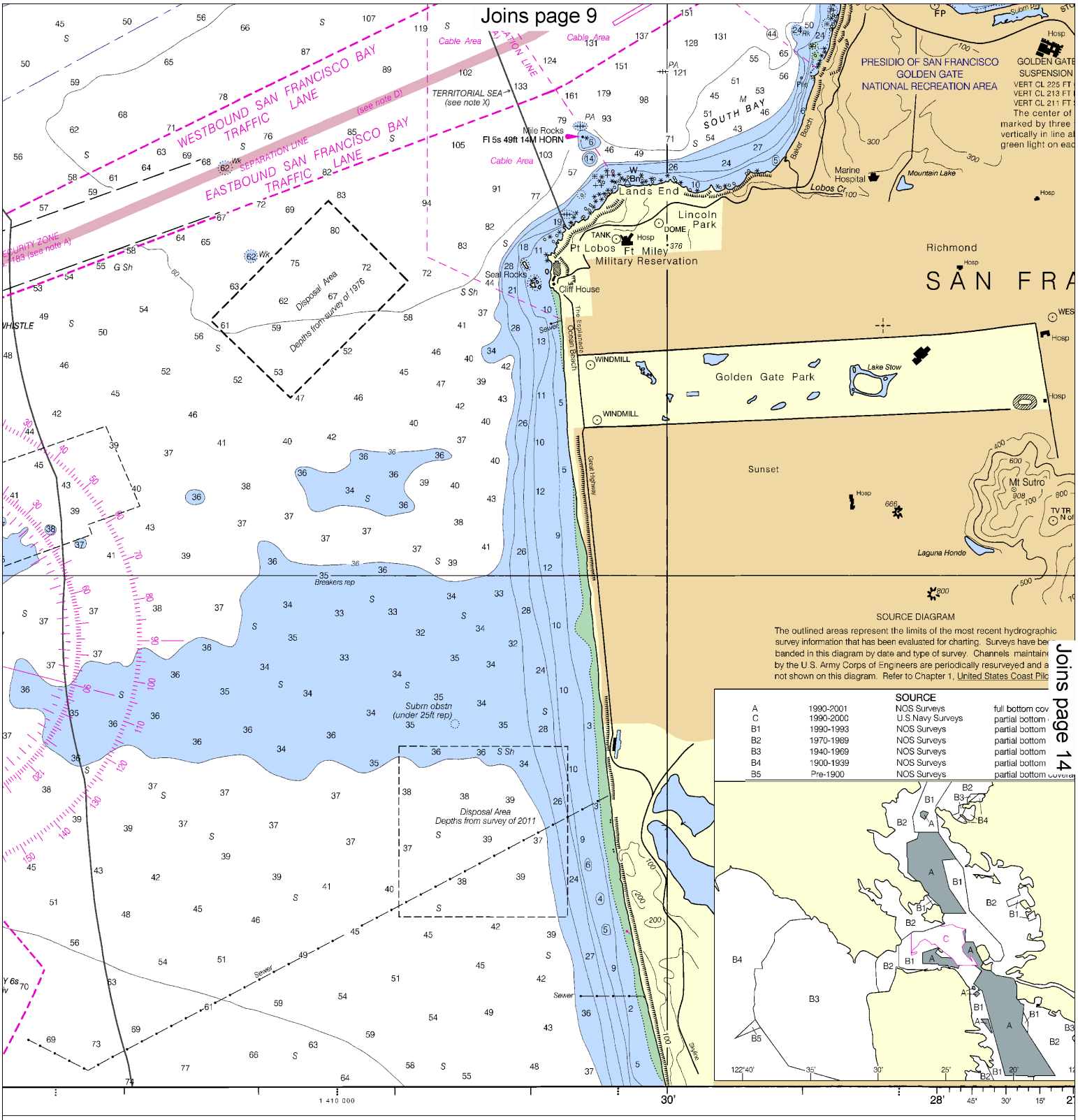
This nautical chart has been designed to promote safe navigation. The Na Ocean Service encourages users to submit corrections, additions, or commen improving this chart to the Chief, Marine Chart Division (N/CS2), National O Service, NOAA, Silver Spring, Maryland 20910-3282.

Note: Chart grid lines are aligned with true north.

Printed at reduced scale. ~~SCALE 1:40,000~~ See Note on page 5.

Nautical Miles: 1 ½ 0 1 2 3

Yards: 1000 0 1000 2000 3000 4000 5000



SCALE 1:40,000

Nautical Miles

1 ½ 0 1 2 3

Yards

1000 0 1000 2000 3000 4000 5000

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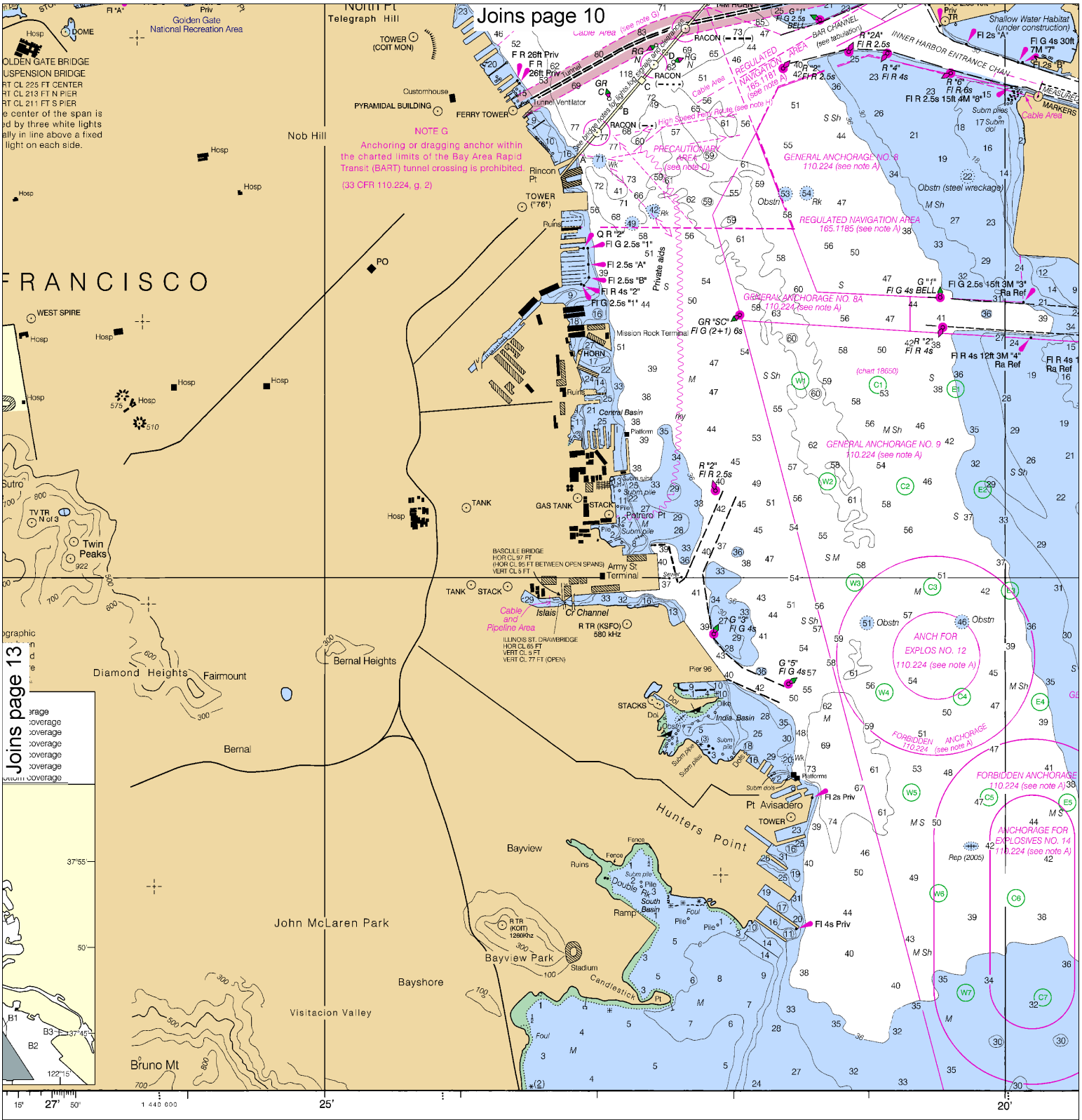

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SOUNDINGS IN FEET

Note: Chart grid lines are aligned with true north.

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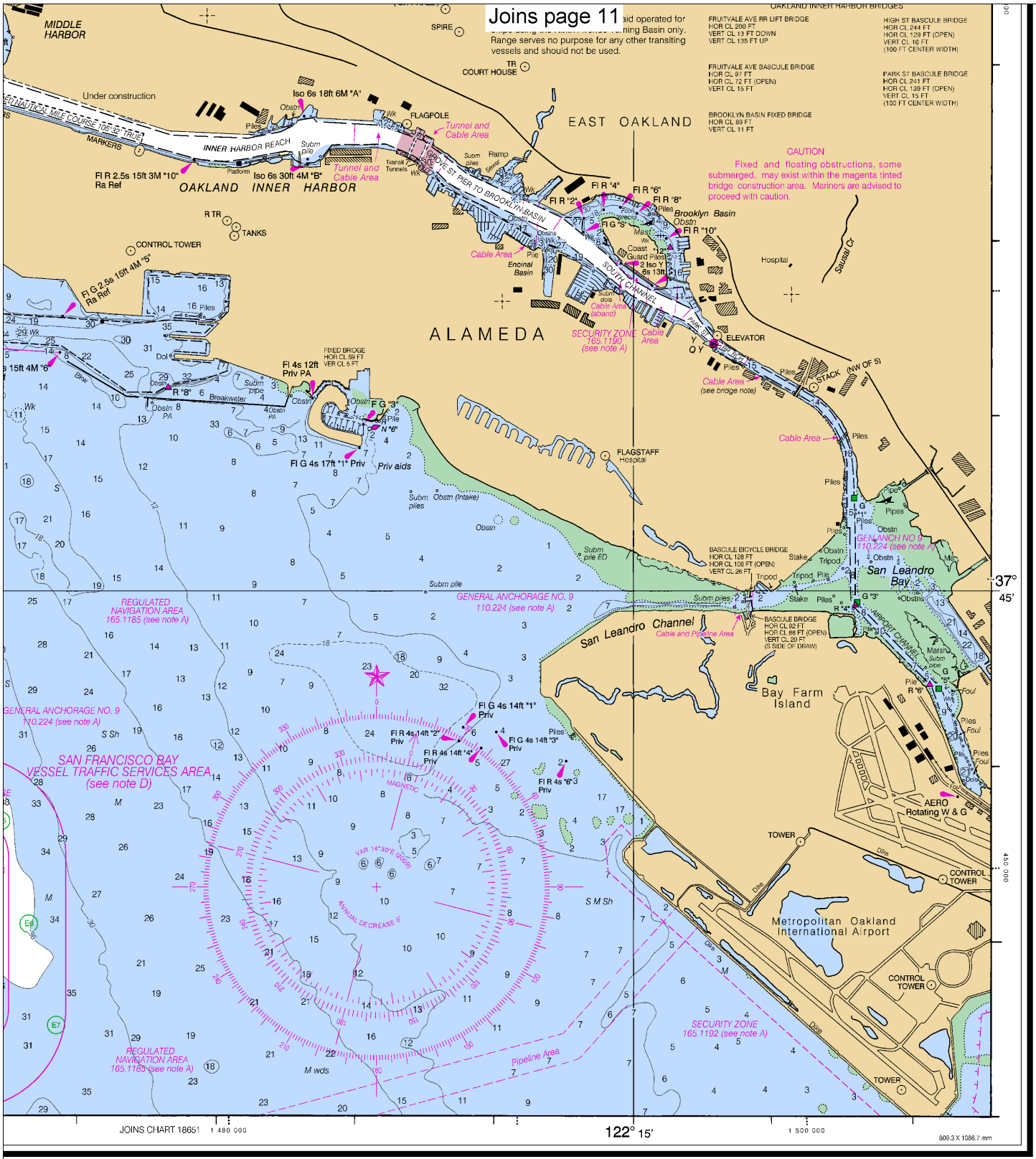
Yards: 1000 0 1000 2000 3000 4000 5000

See Note on page 5.



FATHOMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
FEET	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102
METERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Entrance to San Francisco Bay

SOUNDINGS IN FEET - SCALE 1:40,000

18649

ED NO. 67

NSN 7642014011526

NGA REFERENCE NO 18AHA18649

EMERGENCY INFORMATION

VHF Marine Radio channels for use on the waterways:

Channel 6 – Inter-ship safety communications.
Channel 9 – Communications between boats and ship-to-coast.
Channel 13 – Navigation purposes at bridges, locks, and harbors.
Channel 16 – Emergency, distress and safety calls to Coast Guard and others, and to initiate calls to other vessels. Contact the other vessel, agree to another channel, and then switch.
Channel 22A – Calls between the Coast Guard and the public. Severe weather warnings, hazards to navigation and safety warnings are broadcast here.
Channels 68, 69, 71, 72 and 78A – Recreational boat channels.

Getting and Giving Help — Signal other boaters using visual distress signals (flares, orange flag, lights, arm signals); whistles; horns; and on your VHF radio. You are required by law to help boaters in trouble. Respond to distress signals, but do not endanger yourself.

Distress Call Procedures

- Make sure radio is on.
- Select Channel 16.
- Press/Hold the transmit button.
- Clearly say: "MAYDAY, MAYDAY, MAYDAY."
- Also give: Vessel Name and/or Description; Position and/or Location; Nature of Emergency; Number of People on Board.
- Release transmit button.
- Wait for 10 seconds — If no response Repeat MAYDAY call.

HAVE ALL PERSONS PUT ON LIFE JACKETS!

All Hazards NOAA Weather Radio NOAA's National Weather Service

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week.
http://www.nws.noaa.gov/nwr/

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National Data Buoy Center	—	**http://www.ndbc.noaa.gov/**
NowCoast web portal for coastal conditions	—	**http://www.nowcoast.noaa.gov/**
National Weather Service	—	**http://www.weather.gov/**
National Hurrican Center	—	**http://www.nhc.noaa.gov/**
Pacific Tsunami Warning Center	—	**http://ptwc.weather.gov/**
Contact Us	—	**http://www.nauticalcharts.noaa.gov/staff/contact.htm**

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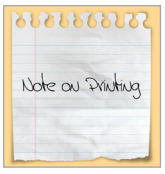

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NOAA's Office of Coast Survey The Nation's Chartmaker